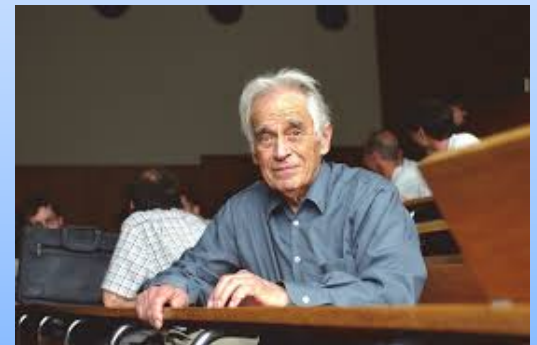


Kummer's Vandiver Conjecture and the FL Approach.

At Erwin Engeler's 90-th



Preda Mihailescu

Mathematisches Institut der Universität Göttingen

580 × 854

My first connections to Erwin Engeler



240 × 160

Marius Solomon:
discussions about the
future directions...
future...



Manuel Bronstein:

The turning point...



Volker Strassen:
Constructor of all this ...

Erwin's connections to Göttingen

580 × 854

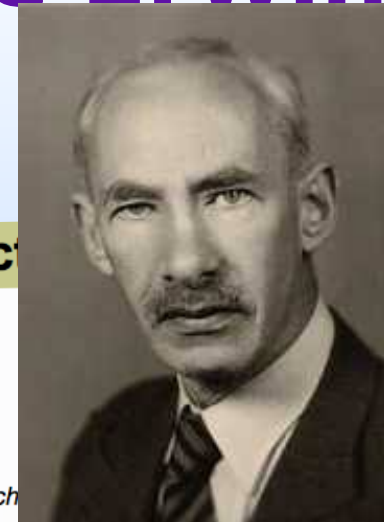
Minkowski's leaving G.
For Z. was an
enrichment for the
young ETH.

240 × 160



580 × 854

Bernay's leaving G. For Z. was an enrichment for the later ETH. It gave Erwin.



0 × 160



Mathematics Genealogy Project

I. Paul (Isaak) Bernays

[Biography](#)

Ph.D. Georg-August-Universität Göttingen 1912 Germany

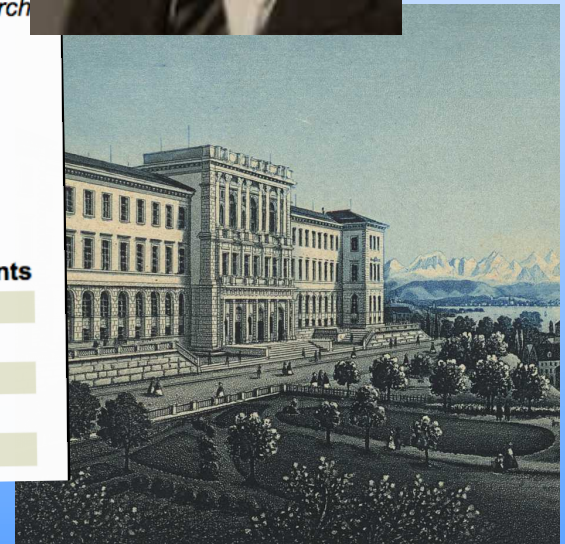
Dissertation: *Über die Darstellung von positiven, ganzen Zahlen durch die primitiven, binären quadratischen Formen einer nicht-quadratischen Diskriminante*

Advisor: [Edmund Landau](#)

Students:

Click [here](#) to see the students listed in chronological order.

Name	School	Year	Descendants
Altwegg, Martin	ETH Zürich	1948	
Böhm, Corrado	ETH Zürich	1954	44
Büchi, J. Richard	ETH Zürich	1950	71
Eisenring, Max	ETH Zürich	1942	
Engeler, Erwin	ETH Zürich	1958	152



**Thank you
Erwin!
Thank you,
ETH!**



CS Future?

**Sophie qui
aura 30 ans
en l'an 2045:**

**How will be
her
CHARACTER?**



- Will she find loopholes for shipping billions of profit to tax free islands?
- Will she find ways to clean the planet and help use the available resources for human life?
- Will she have a kind **heart**?



„Artificial Intelligence is not good or bad. It is like a small child, it looks through our eyes and will learn from the choices we make!“



The rest of this talk is about *this* (according to Lang):

Some basic conjectures remain open, notably the **Kummer–Vandiver conjecture** that h_p^+ is prime to p . The history of that **conjecture** is interesting. **Kummer** made it in no uncertain terms in a **letter to Kronecker** dated 28 December 1849. **Kummer** first tells **Kronecker** off for not understanding properly what he had previously written about cyclotomic fields and Fermat’s equation, by stating “so liegt hierin ein grosser Irrthum deinerseits ...”; and then he goes on (Collected Works, Vol. 1, p. 84):

Deine auf dieser falschen Ansicht beruhenden Folgerungen fallen somit von selbst weg. Ich gedenke vielmehr den Beweis des Fermatschen Satzes auf folgendes zu grunden:

1. Auf den noch zu beweisenden Satz, dass es für die Ausnahmszahlen λ stets Einheiten giebt, welche ganzen Zahlen congruent sind für den Modul λ , ohne darum λ te Potenzen anderer Einheiten zu sein, oder was dasselbe ist, dass hier niemals D/Δ durch λ theilbar wird.

**Mathematics is full of
FASCINATING QUESTIONS
and
CONJECTURES**





THE END